

42

4990

Diag. Cht. No. 5502-2 & 5602-2

4990

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S. Patton, Director

C. & G. SURVEY L. & A APR 8 1930 Acc. No.
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State: California

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 42 4990
Hydrographic }

LOCALITY

Pt. Arena
~~Coast of Northern California~~

Pt. Arena to Mendocino Bay
~~Pt. Cabrillo to Pt. Arena~~

1929

CHIEF OF PARTY
F. G. Engle
F.B.T. Siems

DESCRIPTIVE REPORT
To accompany Hydrographic Sheet No. 42

Coast of Northern California

U.S.C. & G.S.S. DISCOVERER

F.B.T. Siems,
Chief of Party.

Instructions Dated March 25, 1929
Project No. 30

LIMITS:

The work on this sheet extends from the 70 fathom to the 200 fathom curve between latitude $39^{\circ} 18'$ and $39^{\circ} 12'$. From latitude $39^{\circ} 12'$ to the southern limit of the sheet, latitude $38^{\circ} 53.5'$, the work extends from a junction with the launch work to ^{a junction with sheet No. 121 near} the 100 fathom curve. The 200 fathom curve being developed near the north and south limits of the sheet.

CONTROL:

Visual fixes were used for control of the survey on the entire sheet. Hydrographic signals were constructed over recovered triangulation stations of second and third order accuracy. The location of these stations are given in the Director's reports for 1904 and 1910, also stations established by E.B. Latham 1917 and C.K. Green 1926.

SURVEY METHODS:

Fathometer sounding using the red light method was used for the survey on this sheet. The Fathometer white light method was used occasionally in depths near 200 fathoms. Vertical casts were taken at frequent intervals over the entire sheet to check the Fathometer soundings and to obtain temperature and salinity data for correcting echo soundings. Bottom specimens were also obtained on vertical casts.

In general, fathometer soundings were taken at 30 second intervals in depths less than 100 fathoms. On greater depths, one minute interval was used. Soundings were obtained while the ship was running at full speed.

Cross lines were spaced about two miles apart. The soundings on cross lines check closely the soundings on the main system of lines.

FATHOMETER:

Fathometer red light sounding was the standard method used on this sheet. Occasionally in depths under 30 fathoms many strays were recorded on the dial and it was difficult to identify the correct sounding. Depths between 30 fathoms and 200 fathoms were recorded exceptionally well with the red light method. In general there were no strays and the depth was recorded regularly with a brilliant red flash. The records were examined and the doubtful soundings have been rejected.

Serial temperatures were taken at intervals during the season and surface and bottom temperatures were taken on each vertical cast. A careful study disclosed there was very little variation in the temperatures during the season. Temperature corrections for reducing the soundings were obtained from a mean of all the temperatures obtained during the season (except those obtained on Nov.4). After applying the temperature correction to red light soundings, they were compared with verticle casts and an initial correction of -0.6 fathom was computed. This initial correction was combined with the temperature correction, and the combined correction applied to all red light soundings. (See special report on temperatures).

SLOPE CORRECTIONS:

No slope corrections were necessary on this sheet.

GENERAL CHARACTERISTICS:

There are no shoals within the survey on this sheet. Shoals and dangers near the shore have been described in connection with the launch sheets.

The bottom slopes gently from the 30 fathom to the 100 fathom curve. It is rocky and irregular near the shore, generally sandy offshore for a short distance and farther offshore it is gray mud.

DESCREANCIES WITH ADJOINING SHEETS 23& 24:

A comparison of the fathometer work on this sheet and the launch work on the adjoining sheets discloses that in some cases the fathometer soundings in shoal areas are incorrect. The fathometer soundings in such cases have been rejected. If there are any such additional fathometer sounding found the launch soundings should be used.

A tracing of the junction of the launch soundings is attached to the smooth sheet.

The small shoal area in latitude $39^{\circ} 07'$ 700 meters, longitude $123^{\circ} 44'$ 630 meters with a depth of 16 fathoms developed on sheet 23, sub-sketch "C", was not picked up by the fathometer on line 13 to 14-K day.

The fathometer soundings on line 54 to 59-L day are apparently too deep as they cross previous fathometer soundings by a wide margin and do not agree with soundings duplicated on sheet No. 24 from 57 to 59-L day.

The fathometer soundings on line 27 to 28-L are apparently too deep, as evidenced by detailed development of this area on sheet No. 24.

TIDAL DATA:

The records of a portable Automatic Tide Gauge at Mendocino City and a Standard Automatic Tide Gauge at Arena Cove were used for the tide reducers for the soundings on this sheet. The time and range of the tide at both stations are near the same. (See Director's letter dated Feb. 1930 regarding tidal data). The records at Mendocino Bay were used, supplemented by Arena Cove when the former records were incomplete.

Respectfully submitted,

George L. Anderson
G.L. Anderson,
Jr. H. & G. Engr.

Approved and forwarded;

F.B.T. Siens
F.B.T. Siens,
Chief of Party.

CORRECTIONS TO FATHOMETER SOUNDINGS

DEPTH	TEMP. CORR. FOR MAX. DEPTH	INITIAL CORRECTION	TOTAL CORRECTION	CORRECTION USED
fms	fms	fms	fms	fms
0 - 15	-0.3	-0.6	-0.3	$-\frac{1}{2}$
16 - 45	0.8	-0.6	-0.2	0
46 - 75	1.3	-0.6	0.7	$+\frac{1}{2}$
76 - 125	2.0	-0.6	1.4	+1
126 - 250	3.2	-0.6	2.6	+2
251 - 375	4.2	-0.6	3.7	+3
376 - 450	4.5	-0.6	3.9	+4

The distance between the location of the oscillator and hydrophone which was used in obtaining red light soundings was 22 feet. The altitude of the isoscles triangle produced by the sound traveling from the oscillator to the bottom and thence to the hydrophone would be the correct depth while the fathometer reading would be equal to the sides of the triangle. In the solution for the altitude of the triangle for various depths obtained by the fathometer, it was determined that the difference between the altitude (correct depth) and the fathometer reading was so small that no correction need be applied to the soundings.

Statistics for Sheet No. 42 (field No.)

Date 1929	Letter	Vol	Positions	Soundings	Miles	Vessel
Jun 6	A	1	107	854	78.4	Ship
21	B	1-2	171	1362	126.0	do
22	C	2	22	159	24.0	do
29	D	2	121	878	68.5	do
Jul 2	E	2-3	139	1071	104.0	do
3	F	3	178	1145	178.0	do
11	G	3-4	152	1239	108.0	do
13	H	4	15	110	8.9	do
14	J	4	56	361	34.3	do
16	K	4	83	537	51.0	do
17	L	4-5	106	710	64.5	do

8426

APPROVAL of Chief of Party

The field work was done under the direction of Capt. F. G. Engle.

The office work was done under my supervision, and after examination was found to be complete with exception of cross lines

A handwritten signature in cursive script, appearing to read "F. B. T. Sims".

F. B. T. Sims.

com

April 25, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 4990

Locality: California (Mendocino to Point Arena)

Chief of Party: F. B. T. Siems, in 1929
Plane of reference is mean lower low water, reading
1.6 ft. on tide staff at Mendocino City
ft. below B. M.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

R.P.R.
Actg. Chief, Division of Tides and Currents.

Section of Field Records

Sheet No H 4990

Surveyed in 1929

Chief of Party F. E. Engle

Surveyed by F. E. Engle

Projected by J. R. Rubottom

Soundings Plotted by C. J. Wagner

Verified & Inked by C. M. Blossom

1. The records conform to the requirements of the general instructions.
2. The plan and character of development fulfill the requirements of the general instructions.
3. The usual depth curves can be completely drawn within the limits of the sheet.
4. The field plotting was completed to the extent prescribed in general instructions.
5. The office draftsman did not have to do over any part of drafting done by field party, except as noted on statistic sheet.
6. The junction with adjacent sheets, which were examined, were found to be satisfactory. An examination of the remaining adjacent sheets will be made when they have been inked and verified.

Respectfully submitted,
C. M. Blossom

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

April 21, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4990

Off Coast of California, Pt. Arena to Mendocino Bay

Surveyed in 1929

Fathometer soundings

Instructions dated March 25, 1929. (Discoverer)

Chief of Party - F. B. T. Siems, F. G. Engle

Surveyed by F. G. Engle

Protracted by I. R. Rubottom

Soundings plotted by G. J. Wagner

Verified and inked by G. C. McGlasson

1. The records conform to the requirements.
2. The plan, character and extent of the survey satisfy the general and specific instructions.
3. The sounding line crossings in general are considered excellent. A few short lines were rejected in the field when the fathometer was not working properly, and a few fathometer soundings were rejected in the office when they did not agree with the lead line soundings on the inshore launch work.
4. The information is sufficient for drawing the usual depth curves.
5. The junction on the north with H. 4989 is satisfactory.

The off-shore junction with H. 4991 will be reported in the review of that sheet when it is completed.

The off-shore junction with H. 4992 will be reported in the review of H. 4992.

The junction inshore with H. 4984 is satisfactory except between Lat. $39^{\circ}12.5'$ and Lat. $39^{\circ}15'$ where it is not close enough.

The junction inshore with H. 4985 is generally satisfactory although a few fathometer soundings were rejected when they did not check with the launch work.

The junction on the south with H. 4987 is satisfactory.

6. Comparison with previous work.

The general agreement of the soundings on this sheet, H. 4990, with those on the old surveys, H. 1586a, H. 1537, H. 1536, H. 1535 and H. 1508 is very good. About the only discrepancies which need be mentioned are the following soundings:

A $38\frac{1}{2}$ fathom sounding shown on H. 1537 in Lat. $39^{\circ}11.8'$, Long. $123^{\circ}48.3'$ close to the 50 fathom curve appears doubtful. The sounding was verified from the old records and as there is no apparent reason for rejecting it, it will be retained.

A $12\frac{3}{4}$ fathom shown on H. 1537 in Lat. $39^{\circ}08.7'$, Long. $123^{\circ}45.2'$ close to the 20 fathom curve. This sounding was also verified from the record, but it was obtained while the leadsman was being changed and there was probably some confusion. As neither this sheet H. 4990 nor the inshore sheet H. 4984 show any indication of a shoaling at this point, it is recommended that the $12\frac{3}{4}$ fathom sounding be omitted from the chart.

7. The usual amount of field plotting was well done by the field party.
8. The survey as a whole is considered excellent. The ground is uniformly covered except in the area north of Lat. $39^{\circ}12'$ in the vicinity of the 50 fathom curve. The old sheet, H. 1586a, does not show any indication of shoaling in this area and the instructions do not call for a complete survey north of Lat. $39^{\circ}12.5'$. As the test lines on H. 4990 show that no change appears to have taken place since H. 1586a was surveyed and the bottom is regular throughout no special development was needed. The correction to fathometer soundings as computed by the field party was accepted.
9. No additional work is necessary.
10. Reviewed by R. L. Johnston, February 20, 1931.

Approved:

A. M. Sobieralski
Chief, Section of Field Records (CHARTS)

J. S. Gordon
Chief, Section of Field Work (H. & T.)

Inspected: E. R. E

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO:
4990

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 42

REGISTER NO. **4990**

State California

General locality ~~Northern Coast~~ Pt. Arena

Locality Pt. Cabrillo to Point Arena to Mendocino Bay

Scale 1:40,000 Date of survey Jun 6 to Jul 17, 1929

Vessel DISCOVERER

Chief of Party F. G. Engle

Surveyed by F. G. Engle

Protracted by I. R. RUBOTTOM

Soundings penciled by C. J. Wagner

Soundings in fathoms ~~XXXX~~ feet

Plane of reference Mean Lower Low Water

Subdivision of wire dragged areas by _____

Inked by _____

Verified by _____

Instructions dated March 25, 1929, 19

Remarks: Office work done under supervision of F. B. T. Siems

5502-2
5602-2

[Faint, mostly illegible text, possibly bleed-through from the reverse side of the page]

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

DEPARTMENT OF COMMERCE

AND REFER TO NO. **11-WSW**

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

April 21, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4990

Off Coast of California, Pt. Arena to Mendocino Bay

Surveyed in 1929

Fathometer soundings

Instructions dated March 25, 1929. (Discoverer)

Chief of Party - F. B. T. Siema, F. G. Engle

Surveyed by F. G. Engle

Protracted by I. R. Rubottom

Soundings plotted by G. J. Wagner

Verified and inked by G. C. McClasson

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9. No additional work is necessary.
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Approved:

Chief, Section of Field Records (CHARTS)

Chief, Section of Field Work (H. & T.)

Inspected: E.P.E.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4990.

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.1209..
Number of positions checked	.246..
Number of positions revised	..10....
Number of soundings recorded	.8835.
Number of soundings revised	..111....
Number of signals erroneously plotted or transferred	..0.....

Date:.. 22-Oct. 1930

Cartographer:.. *G. C. M. Blosson*

Applied to Chart Comp. 5711 August 30, 1941. H. E. Mac Ewen